

**ABSTRACT****Multi-Layer Barrier Allowing Recovery Anneal for Ferroelectric Capacitors**

5           A multi-layer barrier for a ferroelectric capacitor includes an outdiffusion barrier layer permeable to both hydrogen and oxygen. The outdiffusion barrier layer covers the ferroelectric of the capacitor. Oxygen passes through the outdiffusion barrier layer into the ferroelectric during an oxygen anneal in order to repair damage to the ferroelectric caused during etching. The outdiffusion  
10 barrier layer reduces the decomposition of the ferroelectric by blocking molecules leaving the ferroelectric during the oxygen anneal. The multi-layer barrier also includes a hydrogen barrier layer deposited on the outdiffusion barrier layer after repair of the ferroelectric by the oxygen anneal. The hydrogen barrier layer allows the multi-layer barrier to block the passage of  
15 hydrogen into the ferroelectric during back-end processes.

Fig. 3